

WHAT IS CLAIMED IS

1. An apparatus for sterilizing and sanitizing water circuits, especially the water circuits of dental units comprising:

a user fluid (F) supply line (1) connected, at one end, to a mains water supply (2) and, at the other end, to the dental unit through a first branch (3) for supplying a series of devices comprising a plurality of handpieces (4); the apparatus being wherein it comprises at least one first unit (9), equipped with a third independent branch (10) connected to the first branch (3) and alternatively containing one of the following:

a first disinfectant/sterilizing fluid (F1) to be supplied at least to the first branch (3) to permit performance of programmable discontinuous sterilizing or sanitizing cycles in the first branch (3);
or

a second sterile, disinfectant or medicinal fluid (F2) to be supplied continuously to the first supply branch (3) independently of, and as an alternative for, the user fluid (F) from the supply line (1);

control means (30) for selecting the supply of the first or of the second fluid (F1, F2) according to the operating configuration of the dental unit, that is to say, a continuous steady-state supply of the first branch (3) or sterilization/disinfection cycles of the first branch (3).

2. An apparatus for sterilizing and sanitizing water circuits, especially the water circuits of dental units comprising:

a user fluid (F) supply line (1) connected, at one end, to a mains water supply (2) and, at the other end, to the dental unit through a first branch (3) for supplying a series of devices comprising a plurality of handpieces (4); the apparatus being wherein it comprises:

a first unit (9) containing a first disinfectant/sterilizing fluid (F1) connected to a third independent branch (10) for supplying the first fluid (F1) at least to the first branch (3) to permit performance of programmable discontinuous sterilization or sanitisation cycles in the first branch (3);

a second unit (12) containing a second sterile, disinfectant or medicinal fluid (F2) connected to the first branch (3) and continuously supplying the second fluid (F2) to the first supply branch (3) independently of, and as an alternative for, the user fluid (F) from the supply line (1);

control means (30) acting on at least one of the first and second units (9, 12) and designed to select the supply of the first or of the second fluid (F1, F2) according to the operating configuration of the dental unit, that is to say, a continuous steady-state supply of the first branch (3) or sterilization/disinfection cycles of the first branch (3).

3. The apparatus according to claim 2, wherein the second unit (12) is equipped with second control means (13) for enabling a

continuous supply of the second fluid (F2), when required, in the first branch (3).

4. The apparatus according to claim 2, wherein the second unit (12) that supplies the second fluid (F2) is connected directly to the first fluid supply branch (3).
5. The apparatus according to claim 2, wherein the second unit (12) that supplies the second fluid (F2) is connected to the third independent branch (10) leading into the first branch (3).
6. The apparatus according to claim 2, wherein the second unit (12) is equipped with second control and selection means (13) for supplying the second fluid (F2) and synchronized with means (14) for supplying a user fluid (F) and with first means (11) for supplying a first disinfectant/sterilizing fluid (F1).
7. The apparatus according to claim 1, wherein the first unit (9) comprises at least one first container (15), holding the first or the second fluid (F1, F2), and first means (16) for extracting the first or second fluid (F1) and introducing it into the third branch (10).
8. The apparatus according to claim 7, wherein the first and second fluids (F1, F2) are contained in interchangeable independent first containers (15) at the first extraction means (16).

9. The apparatus according to claim 2, wherein the first unit (9) comprises at least one first container (15), holding the first fluid (F1), and first means (16) for extracting the first fluid (F1) and introducing it into the third branch (10).
10. The apparatus according to claim 2, wherein the second unit (12) comprises a second container (17) for holding the second fluid (F2) consisting of a liquid mixed with a suitable product to produce a second sterile, disinfectant or medicinal fluid (F2); the second container (17) being removably connected, through a stable fastening element (18) equipped with second means (18a) for extracting the second fluid mixture (F2).
11. The apparatus according to claim 2, wherein the second unit (12) comprises a second container (17) for holding a sterile liquid and a third container (19) holding a disinfectant or medicinal product to be mixed with the sterile liquid by respective dosing means (20) acting between the second container (17) and the third container (19) in such a way as to supply at least the first branch (3) with a second fluid (F2) having properties suitable for the treatment to be carried out.
12. The apparatus according to claim 1 or 2, wherein the control means (30) comprise a logical selection unit (31) connected to the first and second means (11, 13) for selecting the first or second fluid supply (F1, F2) according to operating requirements, and

designed to enable continuous supplying of the second fluid (F2) to each single handpiece (4) selected or to perform cycles of predetermined length and with predetermined quantities of the first fluid (F1).

13. The apparatus according to claim 10, wherein the disinfectant or medicinal product in the third container (19) is in liquid form.
14. The apparatus according to claim 10, wherein the disinfectant or medicinal product in the third container (19) is in powder form.
15. The apparatus according to claim 10, wherein the disinfectant or medicinal product in the third container (19) is in granulated form.
16. The apparatus according to claim 10, wherein the third container (19) is connected to a respective cap (19a) equipped with a cannula (19c) for extracting the product and connected, through a respective conduit (21), to a branch (17a) for supplying the second container (17) and equipped with the dosing means (20).
17. The apparatus according to claim 6, wherein the second control and selection means (13) are coordinated with the means (14) that supply the fluid (F) from the mains so as to allow the second container unit (12) to simultaneously introduce the second sterile, disinfectant or medicinal fluid (F2) into the mains fluid (F) from the supply line (1).

18. The apparatus according to claim 1, wherein the second fluid (F2) is at least a liquid consisting of sterile water mixed with a disinfectant or medicinal product.
19. The apparatus according to claim 1, wherein the second fluid (F2) is at least a liquid consisting of purified sterile water mixed with a disinfectant or medicinal product.
20. The apparatus according to claim 1, wherein the second fluid (F2) is at least a liquid consisting of a 0.1% physiological saline solution mixed with a disinfectant or medicinal product.
21. The apparatus according to claim 1, wherein the second fluid (F2) consists of hydrogen peroxide at final concentrations, when mixed with water, of between 0.1 and 3%.
22. The apparatus according to claim 1, wherein the second fluid (F2) consists of a sterile liquid mixed with Chlorhexidine in quantities of between 0.002 and 0.2 as the final concentration.
23. The apparatus according to claim 1, wherein the second fluid (F2) consists of a sterile liquid mixed with Triclosan in quantities of between 0.005 and 0.5 as the final concentration.

24. The apparatus according to claim 1, wherein it comprises product detection means (33) acting on the first unit (9) and on the control means (30) to enable activation of a continuous supply cycle when the second fluid (F2) is detected and discontinuous sterilization or sanitisation cycle when the first fluid (F1) is detected.